

FILE 'HOME' ENTERED AT 15:26:52 ON 08 JUL 2003

=> file reg		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	1.05	1.05

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STRUCTURE FILE UPDATES: 7 JUL 2003 HIGHEST RN 544408-69-7
DICTIONARY FILE UPDATES: 7 JUL 2003 HIGHEST RN 544408-69-7

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2003

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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STN Note 27, Searching Properties in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> s 1/Li and 0.01-0.99/Ni and 0.01-8.9/Co and 0.11-0.59/Mn and 2/O
85467 1/LI
17304 0.01-0.99/NI
307124 0.01-8.9/CO
7371 0.11-0.59/MN
4168836 2/O
L1 248 1/LI AND 0.01-0.99/NI AND 0.01-8.9/CO AND 0.11-0.59/MN AND 2/O

=> s 1-1.2/Li and 2/Mn and 4/O
85467 1-1.2/LI
10566 2/MN
3107120 4/O
L2 404 1-1.2/LI AND 2/MN AND 4/O

=> file caplus		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	35.36	36.41

FILE 'CAPLUS' ENTERED AT 15:32:29 ON 08 JUL 2003
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FILE COVERS 1907 - 8 Jul 2003 VOL 139 ISS 2
FILE LAST UPDATED: 7 Jul 2003 (20030707/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> s l1

L3 87 L1

=> s l2

L4 2514 L2

=> s l3 and l4

L5 13 L3 AND L4

=> s l5 and (battery or cell)

100135 BATTERY

1666940 CELL

L6 13 L5 AND (BATTERY OR CELL)

=> d l6 1-13 ibib ab kwic

L6 ANSWER 1 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:374005 CAPLUS

DOCUMENT NUMBER: 138:371736

TITLE: Active mass for **battery**, its manufacture and
the **battery**

INVENTOR(S): Cho, Jae Phil; Jung, Won Ll; Park, Yong Chul; Kim,
Geun Bae

PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea

SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003142097	A2	20030516	JP 2002-260246	20020905
US 2003049529	A1	20030313	US 2002-91335	20020306
PRIORITY APPLN. INFO.:			US 2001-316949P	P 20010905
			US 2002-91335	A 20020306
			KR 2002-12570	A 20020308

AB The active mass has a coating layer, contg. a mixt. of a conductor and a
conductive polymeric dispersant, on a electrochem. oxidizable-reducible
material; and is prepd. by coating the mixt. on the electrochem.
oxidizable-reducible material. The **battery** has a separator
between a cathode and an anode; where the cathode and/or the anode
contains the above active mass on a current collector.

TI Active mass for **battery**, its manufacture and the **battery**

AB The active mass has a coating layer, contg. a mixt. of a conductor and a
conductive polymeric dispersant, on a electrochem. oxidizable-reducible
material; and is prepd. by coating the mixt. on the electrochem.
oxidizable-reducible material. The **battery** has a separator
between a cathode and an anode; where the cathode and/or the anode
contains the above active mass on a current collector.

ST **battery** electrode active material coating manuf; coating
conductor polymer dispersant mixt

IT **Battery** electrodes

(manuf. of active mass contg. mixts. of conductors and polymer
dispersants coated on electrochem. oxidizable-reducible materials for

battery electrodes)

IT Gelatins, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (manuf. of active mass contg. mixts. of conductors and polymer dispersants coated on electrochem. oxidizable-reducible materials for **battery electrodes)**

IT Dispersing agents
 (oroton; manuf. of active mass contg. mixts. of conductors and polymer dispersants coated on electrochem. oxidizable-reducible materials for **battery electrodes)**

IT 7440-44-0, Super P, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (activated; manuf. of active mass contg. mixts. of conductors and polymer dispersants coated on electrochem. oxidizable-reducible materials for **battery electrodes)**

IT 1314-23-4, Zirconia, uses 7440-21-3, Silicon, uses 7782-42-5, Graphite, uses 7784-30-7, Aluminum phosphate (AlPO₄) 9003-11-6, Ethylene oxide-propylene oxide copolymer 12057-17-9, Lithium manganese oxide (LiMn₂O₄) 12190-79-3, Cobalt lithium oxide (CoLiO₂) 18282-10-5, Tin oxide (SnO₂) 262857-75-0, Cobalt lithium nickel strontium oxide (Co_{0.1}LiNi_{0.9}Sr_{0.002}O₂) 499969-49-2, Aluminum cobalt lithium magnesium manganese nickel oxide (Al_{0.05}Co_{0.1}LiMg_{0.05}Mn_{0.25}Ni_{0.66}O₂)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (manuf. of active mass contg. mixts. of conductors and polymer dispersants coated on electrochem. oxidizable-reducible materials for **battery electrodes)**

L6 ANSWER 2 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:373988 CAPLUS
 DOCUMENT NUMBER: 138:371722
 TITLE: Secondary lithium **battery**
 INVENTOR(S): Kato, Fumio; Oura, Takafumi; Takeno, Mitsuhiro; Koshina, Shigeru
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003142075	A2	20030516	JP 2001-337634	20011102
PRIORITY APPLN. INFO.:			JP 2001-337634	20011102
AB The battery has an anode contg. an active mass mixt., having d. 1.4-1.8 g/cm ³ , on a Cu foil, and a cathode contg. an active mass mixt., having d 3.3-3.7 g/cm ³ on an Al foil; where the anode active mass mixt. contains graphite and a graphitization resistant carbonaceous material, and the cathode active mass mixt. is selected from a LiMn ₂ O ₄ -LiNiO ₂ mixt., LiMnxNi _{1-x} O ₂ , LiMn ₂ O ₄ -LiNiO ₂ -LiCoO ₂ mixt., and LiMnyNinzCo _{1-y-z} O ₂ . Ni in LiNiO ₂ may be partially replaced by Co and/or Al ions.				
TI Secondary lithium battery				
AB The battery has an anode contg. an active mass mixt., having d. 1.4-1.8 g/cm ³ , on a Cu foil, and a cathode contg. an active mass mixt., having d 3.3-3.7 g/cm ³ on an Al foil; where the anode active mass mixt. contains graphite and a graphitization resistant carbonaceous material, and the cathode active mass mixt. is selected from a LiMn ₂ O ₄ -LiNiO ₂ mixt., LiMnxNi _{1-x} O ₂ , LiMn ₂ O ₄ -LiNiO ₂ -LiCoO ₂ mixt., and LiMnyNinzCo _{1-y-z} O ₂ . Ni in LiNiO ₂ may be partially replaced by Co and/or Al ions.				
ST secondary lithium battery electrode active mass mixt				
IT 12031-65-1, Lithium nickel oxide (LiNiO ₂) 12057-17-9, Lithium manganese oxide (LiMn ₂ O ₄) 12190-79-3, Cobalt lithium oxide (CoLiO ₂)				

143623-51-2, Cobalt lithium nickel oxide (Co_{0.15}LiNi_{0.85}O₂) 179186-44-8,
 Lithium manganese nickel oxide (LiMn_{0.4}Ni_{0.6}O₂) 190902-69-3, Aluminum
 lithium nickel oxide (Al_{0.15}LiNi_{0.85}O₂) 193214-22-1, Aluminum cobalt
 lithium nickel oxide (Al_{0.05}Co_{0.1}LiNi_{0.85}O₂) 404904-11-6, Cobalt
 lithium manganese nickel oxide (Co_{0.4}LiMn_{0.3}Ni_{0.3}O₂)
 RL: DEV (Device component use); USES (Uses)
 (compns. and controlled d. of cathode active mass mixts. for secondary
 lithium batteries)

L6 ANSWER 3 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:355675 CAPLUS

DOCUMENT NUMBER: 138:371699

TITLE: Cathode active material for a rechargeable lithium
battery having structural stability and
 improved cyclelife characteristics

INVENTOR(S): Cho, Jae-Phil; Park, Byung-Woo; Kim, Yong-Jeong; Kim,
 Tae-Jun

PATENT ASSIGNEE(S): S. Korea

SOURCE: U.S. Pat. Appl. Publ., 13 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003087155	A1	20030508	US 2002-270811	20021015
JP 2003178759	A2	20030627	JP 2002-308368	20021023
PRIORITY APPLN. INFO.:			KR 2001-65805	A 20011024

AB A pos. active material for a rechargeable lithium **battery** is
 provided. The pos. active material comprises a lithiated intercalation
 compd. and a coating layer formed on the lithiated intercalation compd.
 The coating layer comprises a solid-soln. compd. and an oxide compd.
 having at least two coating elements, the oxide compd. represented by the
 formula: $MpM'qOr$ wherein M and M' are not the same and are each
 independently at least one element selected from the group consisting of
 Zr, Al, Na, K, Mg, Ca, Sr, Ni, Co, Ti, Sn, Mn, Cr, Fe, and V; $0 < p < 1$;
 $0 < q < 1$; and $1 < r \leq 2$, where r is detd. based upon p and q. The
 solid-soln. compd. is prepd. by reacting the lithiated intercalation
 compd. with the oxide compd. The coating layer has a fracture toughness
 of at least 3.5 MPam^{1/2}. A method of making the pos. active material is
 also provided.

TI Cathode active material for a rechargeable lithium **battery**
 having structural stability and improved cyclelife characteristics

AB A pos. active material for a rechargeable lithium **battery** is
 provided. The pos. active material comprises a lithiated intercalation
 compd. and a coating layer formed on the lithiated intercalation compd.
 The coating layer comprises a solid-soln. compd. and an oxide compd.
 having at least two coating elements, the oxide compd. represented by the
 formula: $MpM'qOr$ wherein M and M' are not the same and are each
 independently at least one element selected from the group consisting of
 Zr, Al, Na, K, Mg, Ca, Sr, Ni, Co, Ti, Sn, Mn, Cr, Fe, and V; $0 < p < 1$;
 $0 < q < 1$; and $1 < r \leq 2$, where r is detd. based upon p and q. The
 solid-soln. compd. is prepd. by reacting the lithiated intercalation
 compd. with the oxide compd. The coating layer has a fracture toughness
 of at least 3.5 MPam^{1/2}. A method of making the pos. active material is
 also provided.

ST lithium secondary **battery** cathode active material

IT **Battery** cathodes

(cathode active material for rechargeable lithium **battery**
 having structural stability and improved cyclelife characteristics)

IT Secondary batteries

(lithium; cathode active material for rechargeable lithium

- battery** having structural stability and improved cyclelife characteristics)
- IT 116327-69-6P, Cobalt lithium nickel oxide ($\text{Co}_{0.1}\text{LiNi}_{0.9}\text{O}_2$)
 RL: DEV (Device component use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (aluminum cobalt lithium nickel zirconium oxide solid soln.-coated, substrate particles, strontium doped; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)
- IT 163596-49-4P, Lithium manganese nickel oxide ($\text{LiMn}_{0.2}\text{Ni}_{0.8}\text{O}_2$)
 RL: DEV (Device component use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (aluminum lithium manganese nickel zirconium oxide solid soln.-coated, substrate particles; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)
- IT 12057-17-9P, Lithium manganese oxide (LiMn_2O_4)
 RL: DEV (Device component use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (aluminum lithium manganese zirconium oxide solid soln.-coated, substrate particles; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)
- IT 67-63-0D, Isopropanol, aluminum and nickel complexes 149-57-5D,
 2-Ethylhexanoic acid, aluminum and nickel complexes 7429-90-5D,
 Aluminum, mixed 2-ethylhexanoato and 2-propanolato complexes 7440-02-0D,
 Nickel, mixed 2-ethylhexanoato and 2-propanolato complexes 521980-95-0
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)
- IT 521981-00-0P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (coatings, on aluminum cobalt lithium magnesium manganese nickel oxide particles; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)
- IT 406939-73-9P, Aluminum cobalt lithium magnesium manganese nickel oxide ($\text{Al}_{0.07}\text{Co}_{0.1}\text{Li}_{1.03}\text{Mg}_{0.07}\text{Mn}_{0.19}\text{Ni}_{0.69}\text{O}_2$)
 RL: DEV (Device component use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (coatings, on aluminum cobalt lithium magnesium manganese nickel zirconium oxide particles, substrate; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)
- IT 521980-97-2P, Aluminum lithium nickel zirconium oxide
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (coatings, on cobalt lithium nickel oxide particles; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)
- IT 191025-46-4DP, Cobalt lithium nickel zirconium oxide, surface coated on cobalt lithium oxide particles
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (coatings, on cobalt lithium oxide, substrate particles; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)
- IT 521980-99-4P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (coatings, on lithium manganese nickel oxide particles; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)

IT 521980-98-3P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (coatings, on lithium manganese oxide particles; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)

IT 521980-96-1P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (coatings, on metal oxides, strontium doped and undoped; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)

IT 521980-93-8DP, Aluminum zirconium oxide (AlZrO₄), solid solns. with aluminum cobalt lithium zirconium oxide 521980-94-9DP, Aluminum cobalt lithium zirconium oxide (Al₀-0.2Co_{0.4}-1LiZr₀-0.2O₂), solid solns. with aluminum zirconium oxide
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (coatings, on metal oxides; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)

IT 12031-65-1P, Lithium nickel oxide (LiNiO₂)
 RL: DEV (Device component use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
 (metal oxide-coated, substrate particles; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)

IT 12190-79-3P, Cobalt lithium oxide (CoLiO₂)
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (mixed metal oxide solid soln.-coated, substrate particles; cathode active material for rechargeable lithium **battery** having structural stability and improved cyclelife characteristics)

L6 ANSWER 4 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:300503 CAPLUS
 DOCUMENT NUMBER: 138:290458
 TITLE: Method for preparation of cathode active material for lithium secondary **battery**
 INVENTOR(S): Kweon, Ho-Jin; Suh, Jun-Won
 PATENT ASSIGNEE(S): Samsung SDI, Co., Ltd., S. Korea
 SOURCE: U.S. Pat. Appl. Publ., 22 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003073004	A1	20030417	US 2002-269991	20021015
PRIORITY APPLN. INFO.:			KR 2001-64095	A 20011017
AB	A process of manufg. a pos. active material for a lithium secondary battery includes prep. a coating-element-contg. org. suspension by adding a coating-element source to an org. solvent, adding water to the suspension to prep. a coating liq., coating a pos. active material with the coating liq., and drying the coated pos. active material.			
TI	Method for preparation of cathode active material for lithium secondary battery			
AB	A process of manufg. a pos. active material for a lithium secondary battery includes prep. a coating-element-contg. org. suspension by adding a coating-element source to an org. solvent, adding water to the suspension to prep. a coating liq., coating a pos. active material with the coating liq., and drying the coated pos. active material.			

ST lithium secondary **battery** cathode active material

IT Alkali metals, uses
Alkaline earth metals
Group IIIA elements
Group IVA elements
Group VA elements
Transition metals, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating element; method for prepn. of cathode active material for
lithium secondary **battery**)

IT Chalcogenides
Oxides (inorganic), uses
RL: DEV (Device component use); USES (Uses)
(lithiated; method for prepn. of cathode active material for lithium
secondary **battery**)

IT Secondary batteries
(lithium; method for prepn. of cathode active material for lithium
secondary **battery**)

IT **Battery** cathodes
Coating materials
(method for prepn. of cathode active material for lithium secondary
battery)

IT 7429-90-5, Aluminum, uses 7439-95-4, Magnesium, uses 7440-09-7,
Potassium, uses 7440-21-3, Silicon, uses 7440-23-5, Sodium, uses
7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-38-2, Arsenic,
uses 7440-42-8, Boron, uses 7440-48-4, Cobalt, uses 7440-55-3,
Gallium, uses 7440-56-4, Germanium, uses 7440-62-2, Vanadium, uses
7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating element; method for prepn. of cathode active material for
lithium secondary **battery**)

IT 555-31-7, Aluminum isopropoxide
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; method for prepn. of cathode active material for lithium
secondary **battery**)

IT 12057-17-9, Lithium manganese oxide LiMn_2O_4 12190-79-3, Cobalt
lithium oxide CoLiO_2 262857-75-0, Cobalt lithium nickel strontium oxide
 $\text{Co}_{0.1}\text{LiNi}_{0.9}\text{Sr}_{0.002}\text{O}_2$ 406939-73-9, Aluminum cobalt lithium
magnesium manganese nickel oxide $\text{Al}_{0.07}\text{Co}_{0.1}\text{Li}_{1.03}\text{Mg}_{0.07}\text{Mn}_{0.19}\text{Ni}_{0.69}\text{O}_2$
RL: DEV (Device component use); USES (Uses)
(method for prepn. of cathode active material for lithium secondary
battery)

IT 64-17-5, Ethanol, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method for prepn. of cathode active material for lithium secondary
battery)

L6 ANSWER 5 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:222213 CAPLUS

DOCUMENT NUMBER: 138:240689

TITLE: Method for preparation of **battery** active
material with excellent electrochemical
characteristics and thermal stability

INVENTOR(S): Kweon, Ho-Jin; Suh, Jun-Won; Yoon, Jang-Ho; Park,
Jung-Joon

PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea

SOURCE: U.S. Pat. Appl. Publ., 25 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND DATE

APPLICATION NO. DATE

US 2003054250	A1	20030320	US 2002-189384	20020708
CN 1399363	A	20030226	CN 2002-2126435	20020719
JP 2003100296	A2	20030404	JP 2002-210922	20020719
PRIORITY APPLN. INFO.:			KR 2001-43554	A 20010719

- AB An active material for a **battery** has a surface treatment layer that includes a conductive agent and at least one coating-element-contg. compd. selected from the group consisting of a coating-element-contg. hydroxide, a coating-element-contg. oxyhydroxide, a coating-element-contg. oxycarbonate, a coating-element-contg. hydroxycarbonate, and a mixt. thereof.
- TI Method for preparation of **battery** active material with excellent electrochemical characteristics and thermal stability
- AB An active material for a **battery** has a surface treatment layer that includes a conductive agent and at least one coating-element-contg. compd. selected from the group consisting of a coating-element-contg. hydroxide, a coating-element-contg. oxyhydroxide, a coating-element-contg. oxycarbonate, a coating-element-contg. hydroxycarbonate, and a mixt. thereof.
- ST **battery** electrode active material
- IT Alkali metals, uses
Alkaline earth metals
Group IIIA elements
Group IVA elements
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)
- IT Chalcogenides
Intercalation compounds
Oxides (inorganic), uses
RL: DEV (Device component use); USES (Uses)
(lithiated; method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)
- IT **Battery** cathodes
(method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)
- IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)
- IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)
- IT Metals, uses
RL: MOA (Modifier or additive use); USES (Uses)
(method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)
- IT 116327-69-6, Cobalt lithium nickel oxide $\text{Co}_{0.1}\text{LiNi}_{0.9}\text{O}_2$
RL: DEV (Device component use); USES (Uses)
(Sr-doped; method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)
- IT 7429-90-5, Aluminum, uses 7439-95-4, Magnesium, uses 7440-09-7, Potassium, uses 7440-21-3, Silicon, uses 7440-23-5, Sodium, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-38-2, Arsenic, uses 7440-42-8, Boron, uses 7440-48-4, Cobalt, uses 7440-55-3, Gallium, uses 7440-56-4, Germanium, uses 7440-62-2, Vanadium, uses 7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)
- IT 7440-24-6, Strontium, uses
RL: MOA (Modifier or additive use); USES (Uses)
(cobalt lithium nickel oxide doped with; method for prepn. of

battery active material with excellent electrochem. characteristics and thermal stability)

IT 555-31-7, Aluminum isopropoxide 13780-71-7, Boronic acid
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)

IT 96-49-1, Ethylene carbonate 616-38-6, Dimethylcarbonate
 12057-17-9, Lithium manganese oxide LiMn_2O_4 12190-79-3, Cobalt lithium oxide CoLiO_2 18282-10-5, Tin dioxide 21324-40-3, Lithium hexafluorophosphate 24623-77-6, Aluminum hydroxide oxide AlOOH 501662-97-1
 RL: DEV (Device component use); USES (Uses)
 (method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)

IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 24937-79-9, Pvd
 RL: MOA (Modifier or additive use); USES (Uses)
 (method for prepn. of **battery** active material with excellent electrochem. characteristics and thermal stability)

L6 ANSWER 6 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:203522 CAPLUS

DOCUMENT NUMBER: 138:207860

TITLE: A method for preparation of active material for **battery**

INVENTOR(S): Cho, Jae-Phil; Jung, Won-Il; Park, Yong-Chul; Kim, Geun-Bae

PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea

SOURCE: Eur. Pat. Appl., 31 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1291941	A2	20030312	EP 2002-19772	20020904
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
US 2003049529	A1	20030313	US 2002-91335	20020306
PRIORITY APPLN. INFO.:			US 2001-316949P	P 20010905
			US 2002-91335	A 20020306

AB An active material for a **battery** is provided with a coating layer including either a conductive agent, or a coating layer having a mixt. of a conductive agent, and a conductive polymeric dispersant. The material comprises one of a metal, a Li-contg. alloy, a S-based compd., compds. that reversibly form Li-contg. compds. by a reaction with Li ions, and a lithiated intercalation compd. that reversibly intercalates/deintercalates the Li ions.

TI A method for preparation of active material for **battery**

AB An active material for a **battery** is provided with a coating layer including either a conductive agent, or a coating layer having a mixt. of a conductive agent, and a conductive polymeric dispersant. The material comprises one of a metal, a Li-contg. alloy, a S-based compd., compds. that reversibly form Li-contg. compds. by a reaction with Li ions, and a lithiated intercalation compd. that reversibly intercalates/deintercalates the Li ions.

ST **battery** electrode active material prepn

IT Conducting polymers
 (dispersant; method for prepn. of active material for **battery**)

IT Polyoxyalkylenes, uses
 RL: MOA (Modifier or additive use); USES (Uses)

(dispersant; method for prepn. of active material for **battery**)

IT Carbonaceous materials (technological products)
Chalcogenides
Oxides (inorganic), uses
RL: DEV (Device component use); USES (Uses)
(lithiated; method for prepn. of active material for **battery**)

IT Intercalation compounds
RL: DEV (Device component use); USES (Uses)
(lithium; method for prepn. of active material for **battery**)

IT **Battery** electrodes
Coating materials
Dispersing agents
(method for prepn. of active material for **battery**)

IT Gelatins, uses
RL: MOA (Modifier or additive use); USES (Uses)
(method for prepn. of active material for **battery**)

IT Polysulfides
RL: DEV (Device component use); USES (Uses)
(org.; method for prepn. of active material for **battery**)

IT 7784-30-7, Aluminum phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; method for prepn. of active material for **battery**)

IT 79-10-7D, Acrylic acid, esters, copolymers with acrylonitrile and styrene
100-42-5D, Styrene, copolymers with acrylonitrile and acrylate esters
107-13-1D, Acrylonitrile, copolymers with styrene and acrylate esters
108-32-7, Propylene carbonate 9002-86-2, Polyvinyl chloride 9003-54-7,
Acrylonitrile-styrene copolymer 9003-56-9, Abs polymer 9010-94-0,
Acrylonitrile-butadiene-methyl methacrylate-styrene copolymer
25322-68-3, Peo 49717-87-5, 2-Propenoic acid, ion(1-) homopolymer, uses
106392-12-5, Ethylene oxide-propylene oxide block copolymer
RL: MOA (Modifier or additive use); USES (Uses)
(dispersant; method for prepn. of active material for **battery**)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(lithiated; method for prepn. of active material for **battery**)

IT 1332-29-2, Tin oxide 7440-21-3, Silicon, processes 22465-17-4,
Titanium nitrate
RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PROC (Process)
(method for prepn. of active material for **battery**)

IT 1314-23-4, Zirconium oxide (ZrO₂), uses 7704-34-9D, Sulfur, compd.
11102-77-5 **12057-17-9**, Lithium manganese oxide LiMn_2O_4
12190-79-3, Cobalt lithium oxide CoLiO_2 12798-95-7 18282-10-5, Tin
dioxide 53680-59-4 74432-42-1, Lithium polysulfide 262857-75-0,
Cobalt lithium nickel strontium oxide $\text{Co}_{0.1}\text{LiNi}_{0.9}\text{Sr}_{0.002}\text{O}_2$
499969-49-2
RL: DEV (Device component use); USES (Uses)
(method for prepn. of active material for **battery**)

IT 329184-61-4, Degressal sd40
RL: MOA (Modifier or additive use); USES (Uses)
(method for prepn. of active material for **battery**)

IT 7439-93-2, Lithium, uses 7440-31-5, Tin, uses 7440-32-6, Titanium,
uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method for prepn. of active material for **battery**)

L6 ANSWER 7 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2003:203260 CAPLUS

DOCUMENT NUMBER: 138:224222

TITLE: Anode active material and nonaqueous electrolyte
battery

INVENTOR(S): Inagaki, Hiroki; Takami, Norio

PATENT ASSIGNEE(S): Japan
 SOURCE: U.S. Pat. Appl. Publ., 30 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003049541	A1	20030313	US 2002-108435	20020329
JP 2003086177	A2	20030320	JP 2002-97651	20020329
PRIORITY APPLN. INFO.:			JP 2001-95027	A 20010329
			JP 2001-95029	A 20010329
			JP 2001-198088	A 20010629

OTHER SOURCE(S): MARPAT 138:224222

AB Disclosed is a nonaq. electrolyte **battery**, comprising a pos. electrode contg. a pos. electrode active material, a neg. electrode contg. a sulfide contg. Fe, and a nonaq. electrolyte including a nonaq. solvent and a solute dissolved in the nonaq. solvent, the nonaq. solvent contg. a first solvent contg. a cyclic carbonate and a second solvent contg. a chain carbonate, wherein the content of the first solvent in the nonaq. solvent falls within a range of 4.8-29% by vol. and the content of the second solvent in the nonaq. solvent falls within a range of 71-95.2% by vol.

TI Anode active material and nonaqueous electrolyte **battery**

AB Disclosed is a nonaq. electrolyte **battery**, comprising a pos. electrode contg. a pos. electrode active material, a neg. electrode contg. a sulfide contg. Fe, and a nonaq. electrolyte including a nonaq. solvent and a solute dissolved in the nonaq. solvent, the nonaq. solvent contg. a first solvent contg. a cyclic carbonate and a second solvent contg. a chain carbonate, wherein the content of the first solvent in the nonaq. solvent falls within a range of 4.8-29% by vol. and the content of the second solvent in the nonaq. solvent falls within a range of 71-95.2% by vol.

ST anode active material nonaq electrolyte **battery**

IT **Battery** anodes

Secondary batteries

(anode active material and nonaq. electrolyte **battery**)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 623-53-0, Ethyl methyl carbonate 7791-03-9, Lithium perchlorate 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer **12057-17-9**, Lithium manganese oxide LiMn_2O_4 12190-79-3, Cobalt lithium oxide CoLiO_2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium triflate 42821-47-6, Iron thiophosphate FePS_3 62974-69-0, Iron sulfide Fe_9S_{10} 90076-65-6 191024-83-6, Cobalt lithium manganese nickel oxide $\text{Co}_0.4\text{LiMn}_0.1\text{Ni}_0.5\text{O}_2$ 193214-25-4, Aluminum cobalt lithium nickel oxide $\text{Al}_0.05\text{Co}_0.2\text{LiNi}_0.75\text{O}_2$ 193214-37-8, Aluminum cobalt lithium nickel oxide $\text{Al}_0.1\text{Co}_0.15\text{LiNi}_0.75\text{O}_2$ **193215-05-3**, Cobalt lithium manganese nickel oxide $\text{Co}_0.2\text{LiMn}_0.2\text{Ni}_0.6\text{O}_2$ 223923-05-5, Cobalt lithium manganese nickel oxide $\text{Co}_0.3\text{LiMn}_0.1\text{Ni}_0.6\text{O}_2$ 500756-34-3, Copper iron sulfide $(\text{Cu}_0.27\text{Fe}_8.73\text{S}_{10})$ 500756-35-4, Iron nickel sulfide $(\text{Fe}_9.7\text{Ni}_0.3\text{S}_{11})$ 500756-36-5 500756-37-6, Cobalt lithium nickel niobium oxide $(\text{Co}_0.2\text{LiNi}_0.75\text{Nb}_0.05\text{O}_2)$

RL: DEV (Device component use); USES (Uses)

(anode active material and nonaq. electrolyte **battery**)

L6 ANSWER 8 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:407243 CAPLUS

DOCUMENT NUMBER: 137:8603

TITLE: Cathode active mass for secondary lithium **battery** and its manufacture

INVENTOR(S): Kwon, Ho Jin; Soo, Jun Won; Chung, Won Il

PATENT ASSIGNEE(S): Samsung Sdi Co., Ltd., S. Korea
 SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002158011	A2	20020531	JP 2001-292095	20010925
CN 1346160	A	20020424	CN 2001-137172	20010915
US 2002110736	A1	20020815	US 2001-964263	20010925
PRIORITY APPLN. INFO.:			KR 2000-56246	A 20000925
			KR 2001-36767	A 20010626

AB The cathode active mass has a Li compd. contg. core of secondary particles, having av. diam. 1-10 .mu.m and contg. .gtoreq.1 primary particles having av. diam. 1-3 .mu.m, coated with a layer of oxide, hydroxide, oxyhydroxide, oxycarbonate, and/or hydroxy carbonate of a coating material. The Li compd. is selected from various Li transition metal oxides, which may contain F, S, and/or P. The active mass is prepd. by coating the secondary particles with an aq. or org. soln. of a compd. of the coating material, and heat treating the coated particles.

TI Cathode active mass for secondary lithium **battery** and its manufacture

ST secondary **battery** cathode lithium transition metal oxide particle coating

IT **Battery** cathodes
 (structure and manuf. of coated lithium transition metal oxide secondary particles for secondary lithium **battery** cathodes)

IT 1344-28-1, Aluminum oxide, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (structure and manuf. of alumina coated lithium cobaltate secondary particles for secondary lithium **battery** cathodes)

IT 12057-17-9, Lithium manganese oxide (LiMn2O4)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (structure and manuf. of alumina coated lithium manganese oxide secondary particles for secondary lithium **battery** cathodes)

IT 1303-86-2, Boron oxide, uses
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (structure and manuf. of boron oxide coated lithium cobaltate secondary particles for secondary lithium **battery** cathodes)

IT 12190-79-3, Cobalt lithium oxide (CoLiO2)
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (structure and manuf. of coated lithium cobaltate secondary particles for secondary lithium **battery** cathodes)

IT 116327-69-6, Cobalt lithium nickel oxide (Co0.1LiNi0.9O2)
 406939-73-9
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
 (structure and manuf. of coated lithium transition metal oxide secondary particles for secondary lithium **battery** cathodes)

L6 ANSWER 9 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:372947 CAPLUS

DOCUMENT NUMBER: 137:297251

TITLE: A comparison of the electrode/electrolyte reaction at elevated temperatures for various Li-ion **battery** cathodes

AUTHOR(S): MacNeil, D. D.; Lu, Zhonghua; Chen, Zhaohui; Dahn, J.

R.
CORPORATE SOURCE: Department of Chemistry, Dalhousie University,
Halifax, NS, B3H 3J5, Can.
SOURCE: Journal of Power Sources (2002), 108(1-2), 8-14
CODEN: JPSODZ; ISSN: 0378-7753
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Differential scanning calorimetry (DSC) was used to compare the thermal stability of charged cathodes in 1 M LiPF₆ EC/DEC electrolyte. Seven possible cathode materials for lithium-ion batteries (LiCoO₂, LiNiO₂, LiNi_{0.8}Co_{0.2}O₂, Li_{1+x}Mn_{2-x}O₄, LiNi_{0.7}Co_{0.2}Ti_{0.05}Mg_{0.05}O₂, Li[Ni_{3/8}Co_{1/4}Mn_{3/8}]O₂, and LiFePO₄) were tested under the same conditions. Welded stainless steel DSC sample tubes, that ensured no wt. loss during anal., were used for these measurements, making them reliable. A consideration of these DSC results and the known electrochem. properties of the cathodes may assist the selection of the most suitable lithium-ion cathode material for use in a particular application.
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI A comparison of the electrode/electrolyte reaction at elevated temperatures for various Li-ion **battery** cathodes
ST **battery** cathode selection electrode electrolyte reaction
IT **Battery** cathodes
(comparison of the electrode/electrolyte reaction at elevated temps. for various Li-ion **battery** cathodes)
IT 12031-65-1, Lithium nickel oxide LiNiO₂ 12057-17-9, Lithium manganese oxide (LiMn₂O₄) 12190-79-3, Cobalt lithium oxide LiCoO₂ 15365-14-7, Iron lithium phosphate LiFePO₄ 113066-89-0, Cobalt lithium nickel oxide (Co_{0.2}LiNi_{0.8}O₂) 221689-64-1 468772-63-6, Cobalt lithium manganese nickel oxide (Co_{0.25}LiMn_{0.38}Ni_{0.38}O₂)
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(comparison of the electrode/electrolyte reaction at elevated temps. for various Li-ion **battery** cathodes)

L6 ANSWER 10 OF 13 CAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:272907 CAPLUS
DOCUMENT NUMBER: 136:297393
TITLE: Method of preparation of cathode active material for rechargeable lithium **battery**
INVENTOR(S): Kweon, Ho-Jin; Suh, Joon-Won
PATENT ASSIGNEE(S): Samsung SDI Co. Ltd., S. Korea
SOURCE: Eur. Pat. Appl., 35 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1195825	A2	20020410	EP 2001-117958	20010724
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 2002071990	A1	20020613	US 2001-897445	20010703
JP 2002124262	A2	20020426	JP 2001-207684	20010709
CN 1348225	A	20020508	CN 2001-123264	20010725
PRIORITY APPLN. INFO.:			KR 2000-59336	A 20001009
			KR 2001-26468	A 20010515
AB Disclosed is a pos. active material for a rechargeable lithium battery . The pos. active material includes a core and a surface-treatment layer on the core. The core includes at least one lithiated compd. and the surface-treatment layer includes at least one				

coating material selected from the group consisting of coating element included-hydroxides, oxyhydroxides, oxycarbonates, hydroxycarbonates and any mixt. thereof.

TI Method of preparation of cathode active material for rechargeable lithium **battery**

AB Disclosed is a pos. active material for a rechargeable lithium **battery**. The pos. active material includes a core and a surface-treatment layer on the core. The core includes at least one lithiated compd. and the surface-treatment layer includes at least one coating material selected from the group consisting of coating element included-hydroxides, oxyhydroxides, oxycarbonates, hydroxycarbonates and any mixt. thereof.

ST cathode active material rechargeable lithium **battery**

IT Chalcogenides
 RL: DEV (Device component use); USES (Uses)
 (cobalt lithium; method of prepn. of cathode active material for rechargeable lithium **battery**)

IT Carbonates, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (hydroxycarbonates; method of prepn. of cathode active material for rechargeable lithium **battery**)

IT Secondary batteries
 (lithium; method of prepn. of cathode active material for rechargeable lithium **battery**)

IT **Battery** cathodes
 Coating materials
 Coating process
 Surface treatment
 (method of prepn. of cathode active material for rechargeable lithium **battery**)

IT Hydroxides (inorganic)
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (method of prepn. of cathode active material for rechargeable lithium **battery**)

IT Carbonates, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (oxycarbonates; method of prepn. of cathode active material for rechargeable lithium **battery**)

IT Hydroxides (inorganic)
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (oxyhydroxides; method of prepn. of cathode active material for rechargeable lithium **battery**)

IT 150-46-9, Boron ethoxide 555-31-7, Aluminum isopropoxide 1303-86-2, Boron oxide b2o3, processes 13473-90-0, Aluminum nitrate
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (method of prepn. of cathode active material for rechargeable lithium **battery**)

IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 12057-17-9, Lithium manganese oxide limp2o4 12190-79-3, Cobalt lithium oxide colio2 21324-40-3, Lithium hexafluorophosphate 262857-75-0, Cobalt lithium nickel strontium oxide Co0.1LiNi0.9Sr0.002O2 406939-73-9
 RL: DEV (Device component use); USES (Uses)
 (method of prepn. of cathode active material for rechargeable lithium **battery**)

IT 13780-71-7, Boronic acid 21645-51-2, Aluminum hydroxide, uses 24623-77-6, Aluminum hydroxide oxide
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(method of prepn. of cathode active material for rechargeable lithium
battery)

L6 ANSWER 11 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:253367 CAPLUS

DOCUMENT NUMBER: 136:281942

TITLE: Secondary lithium **battery**

INVENTOR(S): Suhara, Manabu; Sunahara, Kazuo; Kimura, Takashi;
Mihara, Takuya

PATENT ASSIGNEE(S): Seimi Chemical Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002100358	A2	20020405	JP 2000-289767	20000925

PRIORITY APPLN. INFO.: JP 2000-289767 20000925

AB The **battery** uses a cathode active mass mixt. contg.
LixNiyMn1-y-zMzO2 (M = Fe, Co, Cr, and/or Al; 0.9 .ltoreq.x .ltoreq.1.2;
0.40 .ltoreq.y .ltoreq.0.60; z .ltoreq.0.2) and LixpMn2O4 (1 .ltoreq.p
.ltoreq.1.3) having Fd3m spinel type structure.

TI Secondary lithium **battery**

AB The **battery** uses a cathode active mass mixt. contg.
LixNiyMn1-y-zMzO2 (M = Fe, Co, Cr, and/or Al; 0.9 .ltoreq.x .ltoreq.1.2;
0.40 .ltoreq.y .ltoreq.0.60; z .ltoreq.0.2) and LixpMn2O4 (1 .ltoreq.p
.ltoreq.1.3) having Fd3m spinel type structure.

ST secondary **battery** cathode lithium transition metal oxide mixt;
nickel manganese lithium oxide cathode mixt **battery**

IT **Battery** cathodes
(cathodes contg. (substituted) lithium manganese nickel oxide and
spinel type lithium manganese oxide for secondary lithium batteries)

IT 128975-24-6, Lithium manganese nickel oxide (Li2MnNiO4) 179186-44-8,
Lithium manganese nickel oxide (LiMn0.4Ni0.6O2) 287718-96-1, Lithium
manganese nickel oxide (LiMn0.45Ni0.55O2) 405890-05-3, Cobalt
lithium manganese nickel oxide (Co0.1LiMn0.45Ni0.45O2) 405890-06-4,
Chromium lithium manganese nickel oxide (Cr0.1LiMn0.45Ni0.45O2)
405890-07-5, Iron lithium manganese nickel oxide (Fe0.1LiMn0.45Ni0.45O2)
405890-08-6, Aluminum lithium manganese nickel oxide
(Al0.1LiMn0.45Ni0.45O2)
RL: DEV (Device component use); USES (Uses)
(cathodes contg. (substituted) lithium manganese nickel oxide and
spinel type lithium manganese oxide for secondary lithium batteries)

IT 130242-31-8, Lithium manganese oxide (Li1.05Mn2O4)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(cathodes contg. (substituted) lithium manganese nickel oxide and
spinel type lithium manganese oxide for secondary lithium batteries)

L6 ANSWER 12 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:253124 CAPLUS

DOCUMENT NUMBER: 136:265824

TITLE: Nonaqueous electrolyte lithium secondary batteries

INVENTOR(S): Satch, Kouichi; Nohma, Toshiyuki; Nakanishi, Naoya;
Yonezu, Ikuro

PATENT ASSIGNEE(S): Sanyo Electric Co. Ltd., Japan

SOURCE: Eur. Pat. Appl., 14 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1193782	A2	20020403	EP 2001-308352	20010928
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002110253	A2	20020412	JP 2000-300708	20000929
US 2002061443	A1	20020523	US 2001-963463	20010927
CN 1345101	A	20020417	CN 2001-141055	20010929

PRIORITY APPLN. INFO.:

JP 2000-300708 A 20000929

- AB Used as the pos. electrode active substance of a lithium ion secondary cell is a mixt. of a lithium-nickel-cobalt-manganese composite oxide represented by the formula $\text{LiNi}(1-x-y)\text{Co}_x\text{Mn}_y\text{O}_2$ wherein $0.5 < x+y < 1.0$ and $0.1 < y < 0.6$ and a lithium-manganese composite oxide represented by the formula $\text{Li}(1+z)\text{Mn}_2\text{O}_4$ wherein $0 < z < 0.2$. The substance used gives outstanding power characteristics to the cell.
- AB Used as the pos. electrode active substance of a lithium ion secondary cell is a mixt. of a lithium-nickel-cobalt-manganese composite oxide represented by the formula $\text{LiNi}(1-x-y)\text{Co}_x\text{Mn}_y\text{O}_2$ wherein $0.5 < x+y < 1.0$ and $0.1 < y < 0.6$ and a lithium-manganese composite oxide represented by the formula $\text{Li}(1+z)\text{Mn}_2\text{O}_4$ wherein $0 < z < 0.2$. The substance used gives outstanding power characteristics to the cell.
- ST lithium secondary battery nonaq electrolyte; nickel lithium cobalt manganese composite oxide cathode battery
- IT Battery cathodes
(nonaq. electrolyte lithium secondary batteries)
- IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 7782-42-5, Graphite, uses 12057-17-9, Lithium manganese oxide LiMn_2O_4 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte lithium secondary batteries)
- IT 110665-91-3P, Lithium manganese oxide $\text{Li}_{1.2}\text{Mn}_2\text{O}_4$ 130242-30-7P, Lithium manganese oxide $\text{Li}_{1.1}\text{Mn}_2\text{O}_4$ 130242-31-8P, Lithium manganese oxide $\text{Li}_{1.05}\text{Mn}_2\text{O}_4$ 146956-42-5P, Cobalt lithium manganese nickel oxide $\text{Co}_{0.4}\text{LiMn}_{0.2}\text{Ni}_{0.4}\text{O}_2$ 182442-95-1P, Cobalt lithium manganese nickel oxide 217309-43-8P, Cobalt lithium manganese nickel oxide $\text{Co}_{0.3}\text{LiMn}_{0.3}\text{Ni}_{0.4}\text{O}_2$ 217309-45-0P, Cobalt lithium manganese nickel oxide $\text{Co}_{0.5}\text{LiMn}_{0.1}\text{Ni}_{0.4}\text{O}_2$ 252877-07-9P, Cobalt lithium manganese nickel oxide $\text{Co}_{0.6}\text{LiMn}_{0.3}\text{Ni}_{0.1}\text{O}_2$ 404904-10-5P, Cobalt lithium manganese nickel oxide $(\text{Co}_{0.5}\text{LiMn}_{0.3}\text{Ni}_{0.2}\text{O}_2)$ 404904-11-6P, Cobalt lithium manganese nickel oxide $(\text{Co}_{0.4}\text{LiMn}_{0.3}\text{Ni}_{0.3}\text{O}_2)$
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(nonaq. electrolyte lithium secondary batteries)

L6 ANSWER 13 OF 13 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:723269 CAPLUS

DOCUMENT NUMBER: 133:269461

TITLE: Nonaqueous lithium electrolyte secondary battery

INVENTOR(S): Watanabe, Shoichiro; Iwamoto, Kazuya; Ueda, Atsushi; Nunome, Jun; Koshina, Hizuru

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 9 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1043794	A2	20001011	EP 2000-102959	20000214
EP 1043794	A3	20021218		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO

US 6165647 A 20001226 US 1999-289589 19990409

CN 1270424 A 20001018 CN 2000-103653 20000229

PRIORITY APPLN. INFO.: US 1999-289589 A 19990409

OTHER SOURCE(S): MARPAT 133:269461

AB A **battery** (excellent in high temp. storage characteristics)

comprises a pos. electrode having a pos. electrode active material contg. an transition metal complex oxide contg. lithium, a neg. electrode contg. a neg. electrode material capable of storing and releasing a lithium ion, and an electrolytic soln. contg. a nonaq. solvent, an electrolyte, and an org. compd. expressed in formula I, where R1, R2, R3, R4, R5, and R6 have individually at least one of H and a group contg. a vinyl group, and the no. of H substituent is four or less.

TI Nonaqueous lithium electrolyte secondary **battery**

AB A **battery** (excellent in high temp. storage characteristics)

comprises a pos. electrode having a pos. electrode active material contg. an transition metal complex oxide contg. lithium, a neg. electrode contg. a neg. electrode material capable of storing and releasing a lithium ion, and an electrolytic soln. contg. a nonaq. solvent, an electrolyte, and an org. compd. expressed in formula I, where R1, R2, R3, R4, R5, and R6 have individually at least one of H and a group contg. a vinyl group, and the no. of H substituent is four or less.

ST nonaq electrolyte secondary **battery**

IT Fatty acids, uses

RL: DEV (Device component use); USES (Uses)

(esters, carbonates; nonaq. electrolyte lithium secondary **battery**)

IT Secondary batteries

(lithium; nonaq. electrolyte lithium secondary **battery**)

IT Intermetallic compounds

RL: DEV (Device component use); USES (Uses)

(lithium; nonaq. electrolyte lithium secondary **battery**)

IT Coordination compounds

Inorganic compounds

Organic compounds, uses

RL: DEV (Device component use); USES (Uses)

(nonaq. electrolyte lithium secondary **battery**)

IT **Battery** electrolytes

(nonaq. electrolyte secondary **battery**)

IT Fluoropolymers, uses

Styrene-butadiene rubber, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(nonaq. electrolyte secondary **battery**)

IT Lithium alloy

RL: DEV (Device component use); USES (Uses)

(nonaq. electrolyte lithium secondary **battery**)

IT 79-20-9, Methyl acetate 96-49-1, Ethylene carbonate 105-37-3, Ethyl

propionate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate

108-32-7, Propylene carbonate 554-12-1, Methyl propionate 616-38-6,

Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl

carbonate 872-36-6, 1,3-Dioxol-2-one 4437-85-8, Butylene carbonate

7439-93-2, Lithium, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite,

uses 21324-40-3, Lithium hexafluorophosphate 174180-05-3, Cobalt

lithium oxide CoLiO-1.2O2 174180-06-4, Lithium nickel oxide LiO-1.2NiO2

188405-67-6, Lithium manganese oxide LiO-1.2Mn2O4 296800-04-9,

Lithium manganese oxide (LiO-1.2MnO2) 296800-06-1, Cobalt lithium nickel

oxide (CoO-0.9LiO-1.2NiO-1.1O2) 296800-08-3, Cobalt lithium vanadium

oxide (CoO-0.9-0.98LiO-1.2V0.02-0.1O2) 296800-10-7, Lithium nickel

titanium oxide (LiO-1.2NiO-1.1TiO-0.9O2) 296800-12-9, Lithium nickel

vanadium oxide (LiO-1.2NiO-1.1V0-0.9O2) 296800-15-2, Lithium manganese

nickel oxide (LiO-1.2MnO-0.9NiO-1.1O2) 296800-18-5, Iron lithium nickel

oxide (FeO-0.9LiO-1.2NiO-1.1O2) 296800-20-9, Cobalt lithium nickel

titanium oxide ((Co,Ni,Ti)LiO-1.2O2) 296800-21-0, Cobalt lithium

manganese nickel oxide ((Co,Mn,Ni)LiO-1.2O2) 296800-22-1, Aluminum
 cobalt lithium nickel oxide ((Al,Co,Ni)LiO-1.2O2) 296800-23-2, Cobalt
 lithium magnesium nickel oxide ((Co,Mg,Ni)LiO-1.2O2) 296800-25-4, Cobalt
 iron lithium nickel oxide ((Co,Fe,Ni)LiO-1.2O2) 296800-27-6, Cobalt
 lithium nickel zirconium oxide ((Co,Ni,Zr)LiO-1.2O2) 296800-28-7
 , Lithium manganese sodium oxide (LiO-1.2Mn1.1-2NaO-0.9O4)
 296800-30-1, Lithium magnesium manganese oxide
 (LiO-1.2MgO-0.9Mn1.1-2O4) 296800-32-3, Lithium manganese
 scandium oxide (LiO-1.2Mn1.1-2ScO-0.9O4) 296800-35-6, Lithium
 manganese yttrium oxide (LiO-1.2Mn1.1-2YO-0.9O4) 296800-38-9,
 Iron lithium manganese oxide (FeO-0.9LiO-1.2Mn1.1-2O4) 296800-40-3
 , Cobalt lithium manganese oxide (CoO-0.9LiO-1.2Mn1.1-2O4)
 296800-43-6, Lithium manganese nickel oxide (LiO-1.2Mn1.1-2NiO-
 0.9O4) 296800-45-8, Lithium manganese titanium oxide
 (LiO-1.2Mn1.1-2TiO-0.9O4) 296800-47-0, Lithium manganese
 zirconium oxide (LiO-1.2Mn1.1-2ZrO-0.9O4) 296800-49-2, Copper
 lithium manganese oxide (CuO-0.9LiO-1.2Mn1.1-2O4) 296800-51-6,
 Lithium manganese zinc oxide (LiO-1.2Mn1.1-2ZnO-0.9O4) 296800-52-7
 , Aluminum lithium manganese oxide (AlO-0.9LiO-1.2Mn1.1-2O4)
 296800-54-9, Lead lithium manganese oxide (PbO-0.9LiO-1.2Mn1.1-
 2O4) 296800-56-1, Antimony lithium manganese oxide
 (SbO-0.9LiO-1.2Mn1.1-2O4)

RL: DEV (Device component use); USES (Uses)

(nonaq. electrolyte lithium secondary **battery**)

IT 91-14-5 105-06-6, p-Divinylbenzene 108-57-6 3048-52-0,
1,3,5-Trivinylbenzene

RL: MOA (Modifier or additive use); USES (Uses)

(nonaq. electrolyte lithium secondary **battery**)

IT 9003-07-0, Polypropylene

RL: DEV (Device component use); USES (Uses)

(nonaq. electrolyte secondary **battery**)

IT 9003-55-8

RL: TEM (Technical or engineered material use); USES (Uses)

(styrene-butadiene rubber, nonaq. electrolyte secondary **battery**)

DERWENT-ACC-NO: 2000-270899

DERWENT-WEEK: 200248

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TITLE: Nonaqueous electrolyte secondary cell
comprises a lithium-manganese compound oxide and a
lithium-nickel compound oxide

INVENTOR: KANBE, C; KOBAYASHI, A ; NUMATA, T ; SHIRAKATA, M ;
YONEZAWA, M

PATENT-ASSIGNEE: NEC CORP[NIDE] , NIPPON ELECTRIC CO[NIDE]

PRIORITY-DATA: 1998JP-0241918 (August 27, 1998) ,
1998JP-0241912 (August 27,
1998)

PATENT-FAMILY:

PUB-NO	PAGES	MAIN-IPC	PUB-DATE	LANGUAGE
WO 200013250 A1	048	H01M 010/40	March 9, 2000	J
TW 461133 A	000	H01M 004/58	October 21, 2001	N/A
JP 3024636 B2	012	H01M 004/58	March 21, 2000	N/A
JP 2000077071 A	014	H01M 004/58	March 14, 2000	N/A
EP 1117145 A1	000	H01M 010/40	July 18, 2001	E
KR 2001082179 A	000	H01M 010/40	August 29, 2001	N/A

DESIGNATED-STATES: CA KR US AT BE CH CY DE DK ES FI FR GB GR
IE IT LU MC NL PT
SE AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		

WO 200013250A1	N/A	1999WO-JP04608
August 26, 1999		
TW 461133A	N/A	1999TW-0114881
August 27, 1999		
JP 3024636B2	N/A	1998JP-0241918
August 27, 1998		
JP 3024636B2	Previous Publ.	JP2000077071
N/A		
JP2000077071A	N/A	1998JP-0241918
August 27, 1998		
EP 1117145A1	N/A	1999EP-0940495
August 26, 1999		
EP 1117145A1	N/A	1999WO-JP04608
August 26, 1999		
EP 1117145A1	Based on	WO 200013250
N/A		
KR2001082179A	N/A	2001KR-0702409
February 26, 2001		

INT-CL (IPC): H01M004/02, H01M004/36, H01M004/58, H01M010/40

RELATED-ACC-NO: 2000-118983

ABSTRACTED-PUB-NO: WO 200013250A

BASIC-ABSTRACT:

NOVELTY - The anode of a nonaqueous electrolyte secondary cell contains (A) a lithium-manganese compound oxide and (B) a lithium-nickel compound oxide having a specific surface area X of below 0.3 (m²/g) and consisting of at least one kind selected from among the group consisting of LiNiO₂, Li₂NiO₂, LiNi₂O₄, Li₂Ni_{1-x}M_xO₂ (0 less than or equal to x less than or equal to 0.5, and M represents at least one metallic element selected from among the group consisting of Co, Mn, Al, Fe, Cu and Sr).

USE - Nonaqueous electrolyte secondary cell.

ADVANTAGE - Such a nonaqueous electrolyte secondary cell is excellent in cell characteristics, and especially charging/discharging cycle

characteristic,
storage characteristic, and safety.

DESCRIPTION OF DRAWING(S) - The drawing shows the amount of
Mn eluted versus
mixing ratios of LiNi compound oxides.

CHOSEN-DRAWING: Dwg.1/7

TITLE-TERMS: ELECTROLYTIC SECONDARY CELL COMPRISE LITHIUM
MANGANESE COMPOUND
OXIDE LITHIUM NICKEL COMPOUND OXIDE

DERWENT-CLASS: L03 X16

CPI-CODES: L03-E01B; L03-E03;

EPI-CODES: X16-B01F; X16-E01C1;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2000-082545

Non-CPI Secondary Accession Numbers: N2000-202930